Analysis of the patterning of cardiac outflow tract and great arteries with angiography and vascular casting.

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Public Summary:
This article describes a method to study the branching and patterning of arteries in the developing embryo.

Scientific Abstract:
Formation of the cardiac outflow tract and great arteries involves complex morphogenetic processes, whose abnormities result in several clinically important diseases. Studies of these developmental processes are therefore important for understanding congenital vascular defects. However, the three-dimensional structure of arteries makes it challenging to analyze the pattern of vasculature using conventional histological approaches. Here we describe a vascular casting method to visualize the branching and connections of great arteries in developing embryos as well as in adult mice. This technique can be used to study the development of cardiac outflow tract, semilunar valves, and great arteries as demonstrated previously (Circ Res, 2008; Development 135: 3577-3586, 2008).